Journal of the Kansas Entomological Society

Volume 19 October, 1946 Number 4

PUBLICATION COMMITTEE

PAUL B. LAWSON, Editor, Lawrence
R. H. BEAMER, Lawrence R. H. PAINTER, Manhattan
DWIGHT ISELY, Fayetteville, Ark.

JAMES WALKER McCOLLOCH
1889-1929

Entered as second-class matter June 7, 1939 at the Post Office at Manhattan, Kansas, under the Act of August 24, 1912.

ENTOMOLOGICAL SOCIETY
JOURNAL OF THE KANSAS

A quarterly journal published in January, April, July and October devoted to Entomology in the Western Mississippi Basin and the proceedings of the Kansas Entomological Society.

Manuscripts for publication may be sent to any of the publication committee.

The Kansas Entomological Society does not make exchanges since the Society does not maintain a library.

Subscriptions to the Journal must be paid in advance. The subscription rate is so low that second notices are not ordinarily sent out.

Payment of Canadian or other foreign subscriptions and bills must be made by international Postal Money Order or by a draft on a New York bank and payable in U.S.A. dollars.

Subscribers are urged to give us their full cooperation in these matters.

Subscriptions should be sent to Donald A. Wilbur, Department of Entomology, Kansas State College, Manhattan, Kansas.

Subscriptions in the U.S.A.,	$2.00 per year	Single Copy
Canadian or foreign subscriptions,	2.25 per year	75 cents

KANSAS ENTOMOLOGICAL SOCIETY

President, H. H. Walkden, Hutchinson, Kansas
Vice-president, Paul B. Lawson, Lawrence, Kansas
Secretary-Treasurer, Donald A. Wilbur, Manhattan, Kansas

Vol. 19, No. 4, October, 1946

This issue mailed January 7, 1947

Kansas Entomological Society

Volume 19 October, 1946 Number 4

SOME NEW SPECIES OF THE GENUS MISTHARNOPHANTIA, KIRKALDY (Subfamily Flatinae, Family Fulgoridae, Homoptera)

KATHLEEN C. DOERING and CHESTER J. SHEPHERD
Lawrence, Kansas

Abstract:

This paper comprises a taxonomic study of the genus **Mistharnophantia**, described by Kirkaldy in 1907. A brief history of the genus and comparative notes are given. A key to the species is included. The following six new species are described: **curta, ajoensis, extensa, sima, angusta** and **acuta. Rhyncopteryx caudata** Van Duzee is considered a synonym of **Mistharnophantia sonorana** Kirkaldy.

History of the Genus

Kirkaldy described the genus in 1907 with **sonorana** as the only existing species. In 1914 Van Duzee described a new genus and species which he called **Rhyncopteryx caudata**. He compared this genus to **Cyarda** but apparently was unaware of the existence of the Kirkaldy species. Comparison of two paratypes of **Rhyncopteryx**, which Mr. Ross of the California Academy of Science sent for study by the authors shows **Rhyncopteryx caudata** to be **Mistharnophantia sonorana** Kirkaldy, although the paratype of the former seems to have a slightly more bulbous head than the Nogales material of **sonorana.**

Comparative Notes on the Genus

The genus includes species of medium size, averaging approximately 6 mm. for the females, with the males somewhat smaller. Tegmina to apex of clavus slightly longer than broad, produced into an abrupt tail or cauda at apex of clavus and inflated into a conspicuous hump at about basal fourth of corium. The female is broadly angular, with cauda pointed upward. The cauda is lanceolate, extending beyond the tip of the clavus about three times its width at that point. Vertex transverse, about two or three times wider than its median length, subtruncate apically, carinate in the middle, lateral margins diverging anteriorly. Frons sloping backward and upward so that a part of the base shows from above, the disk of this basal portion sharply depressed, its apical margin sharply concave and its lateral margins expanded and slightly rolled forward. Pronotum transverse from above, its lateral portion extending collar-like around and below the eye, a sharp carina elevated somewhat ear-like posterior and mesad of eye and a conspicuous tubercle laterad of the carina. Mesonotum tricarinate.

Key to the Species

1. Cauda of corium not more than about one-sixth of total dorsal length of body, only slightly elevated 2

   Cauda of corium one-fifth to one-fourth total length of body, elevated 3

2. (1) Frons length and width equal; cauda bluntly shortened, clavus three and one-half times longer than cauda ..... **curta n. sp.**

   Frons width greater than length, clavus not quite three times longer than cauda, cauda roundingly pointed, from lateral view tip of frons slightly depressed ..... **ajoensia n. sp.**

3. (1) Median length of frons equal to or less than median length of vertex; from below basal margin of frons truncate or nearly so 4

   Frons slightly longer than median length of vertex, bulbous and rounding 6

4. (3) Head shorter, extending beyond eye a distance less than or equal to length of eye; from below basal margin of frons truncate ..... **sonorana** (Kirkaldy)

   Head longer, extending beyond eye a distance usually one-third greater than length of eye; frons from below with basal margin rounding 5

5. (4) Lateral margins of vertex longer than median length of frons, anterior margin of vertex straighter than in most species; from lateral view median width of gena in front of eye is equal to more than one-half median width of frons, insect only slightly snub-nosed; from lateral view posterior half of tegmen abruptly narrowed and posteriorly elongated, with cauda more spatulate ..... **extensa n. sp.**

   Lateral margin of vertex subequal to median length of frons, tip of head bulbous so that from side view the females especially appear snub-nosed; from a lateral view median width of gena in front of eye is equal to one-half median width of frons; tegmen not so abruptly narrowed ..... **sima n. sp.**

6. (3) Median length of frons from above twice length of vertex, vertex width distinctly narrower than frontal area, a deep concavity across disk of frons and vertex; posterior half of male tegmen greatly elongated but broader with spatulate cauda, dark fuscous coloring ..... **angusta n. sp.**

   Median length of frons long but not twice length of vertex, vertex not much narrower than frons, no pronounced concavities on disks; lower margin of tegmen acutely angled, then abruptly narrowing to a sharply pointed cauda; head pointed ..... **acuta n. sp.**

Mistharnophantia sonorana Kirk. 1907
(Plates I, II, III)

Original Description

Brownish testaceous; a broad, dark fuscous stripe running from apex of head (dorsally) to hind margin of scutellum. Tegmina opaque coriaceous, pale brownish yellow, veins partly concolorous, partly dark fuscous. Length about 3⅞ mm.

Hab. Arizona, Nogales; (Koebiles No. 2498). Only one specimen in bad condition, unfortunately, of this curious form; it is parasitized. It is very Issinae in appearance, but the granulation of the clavus and the structure of the head proclaim it to be Poekillopterine. It is probably allied to Hyphancylus, Fowler, which that author places apparently incorrectly in the Issinae.

Comparative Notes

Size. Length of male from apex of head to tip of posterior claval suture 3.5 mm.; from tip of claval suture to tip of tegmen 1 mm.; length of tegmen 4.25 mm.; width of tegmen 2.5 mm. Female, 4 mm. from apex of head to posterior tip of claval suture; from tip of claval suture to tip of tegmen 1 mm.; length of tegmen 4.25 mm.; width 2.7 mm.

Color. Color dull yellowish or testaceous brown with veins of corium lightly mottled with dark in male, distinctly darker in female; a dorsal brown stripe extending from apex of head to tip of mesonotum and cauda deep fuscous, shaping gradually on to corium proper, cauda with a pale mark at base.

M. sonorana has a distinctly shorter head than any of the other species described in this paper. From a dorsal view the frons extends beyond the vertex a distance less than the median length of the frons and the vertex itself is shorter also in that the anterior margin of the vertex lies directly in line with the anterior margin of the eye. From a lateral view the ventral margin of the frons is so straight that it gives a distinctly flat-faced appearance with the dorsal and ventral margins of the head forming a pronounced angle. The cauda of **sonorana** is short, sharp-pointed and not elevated particularly as in other species.

Male Genitalia. The aedeagal structure is asymmetrical. The aedeagus proper is entirely hidden by the sleevelike theca. On the right side the theca bears a sclerotized hook which at base is nearly three times wider than in middle and which extends four-fifths of the thecal length, on left side is found another sclerotized hook which is little less than half of the thecal length, both hooks with sharp apices. Each harpago as viewed from a lateral view is a convex semi-circle which is one-third longer than wide at a point just anterior to dorsal hook. The hook is about two-thirds the width and bends anteriorly toward the concave side.

Female Genitalia. Tenth segment is about one and one-fourth times longer than broad, somewhat heart-shaped, the anal flap tapering to a

rounding apex. Stylus of eleventh segment conspicuous. The dorsal valves markedly reduced with their apices rather delicate and pointed. The ventral valves well developed, about one and one-half times longer than broad with a smaller spine extending about two-thirds the greater length of valve. The sheath drawn to a blunt point in middle of the dorsal margin so that at this point its width is equal to its length. There are five larger posterior teeth and five lateral teeth.

Geographical Distribution. Type locality is Nogales, Arizona. The authors have studied the specimens of this species from the following localities; a large series of about 60 males and 60 females from Nogales. Other places in Arizona are as follows: Santa Rita Mountains, 21 males and 14 females; Sasabe, 6 males and 6 females; Alter Valley, 2 males; Patagonia, 4 males and 2 females; Yarnell Mountains, 1 female and 6 males; Baboquivara Mountains, 8 females and 2 males; Littlefield, 4 males; Superior, 1 male and 1 female; San Cata Mountains, 1 male; Atoscasa Mountains, 5 females and 5 males; Tuscon Mountains, 1 female; Yavapai, 1 male and 1 female; Arivaca, 7 females; Chiricahua, 3 females; Alamo, 1 female; Congress Junction, 16 males and 13 females; Sabino Canyon, 5 males and 37 females; Tucson, 12 females, 12 males; Quinion Mountains, 2 females and 1 male; Hope, 1 male; Ruby, 1 female; Vail, 1 female; Miami, 1 male. Specimens from California are as follows: Huntington Beach, 13 females, 7 males; San Diego, 2 males; Jacumba, 3 females and 4 males; Sunset Beach, 3 females and 4 males; Gaviota, 3 males; La Jolla, 60 males and 55 females; San Monica, 3 females and 1 male; Campo, 2 males; San Onofre, 1 male and 1 female; Carlsbad, 4 males; Ventura, 1 male. Other places include Chaves Co., New Mexico, 1 female; White City, New Mexico, 1 female; Homestead, Florida, 4 males and 2 females; Hillard, Florida, 1 male; Seymour, Texas, 3 females and 5 males; Carrizo, Texas, 1 male.

Mistharnophantia acuta n. sp.

(Plates I, II, III)

Size. Length of male from apex of head to posterior tip of claval suture 3.5 mm.; from tip of claval suture to tip of tegmen 1.25 mm.; length of tegmen 3.75 mm.; width of tegmen 2 mm. Female from apex of head to posterior tip of claval suture 4 mm.; from tip of claval suture to tip of tegmen 1.25 mm.; width of tegmen 2.25 mm.

Color. General body and tegmen of male testaceous. Frons light brown darkened at base, clouded with fuscous across disk, inside lateral margin near base a dark dash sometimes indicated. Clypeus dark reddish brown. Gena in front of eye marked with three small darkish dots. Apex of clavus and cauda of tegmen dark fuscous, veins lightly mottled with fuscous. Female much darker, lateral markings on frons stronger, tegmen with fuscous areas enlarged, forming a semicircular depressed spot on clavus, an interrupted brownish streak following claval suture and 2 or 3 brown cells on apex; anterior part of corium moderately clouded with dark; posterior half

more uniformly dark, except for an isolated club-shaped testaceous spot and 2 or 3 smaller round spots just anterior to cauda.

Structural Characteristics. Vertex is twice as wide as its median length, the median length being a little less than median length of dorsal part of frons. Lateral dorsal margins of frons straight, giving head from above a much narrower, pointed appearance than in any other species. The apex of frons is rolled backwards slightly, thus from a lateral view the apex of head is produced upwards. Anteriorly pronotum is roundingly produced to the middle of the eye; its median length is one-half the mesonotum. Mesonotum has two lateral carinae with a slightly depressed area between; the posterior tip is drawn to a point. Frons, from below, shows its greatest length equal to its greatest width; circularly rounded basally and anteriorly convex, posteriorly flattened, the sides rolled forward. The greatest length of clypeus is equal to median length of frons. From the point of greatest width the tegmen of the male narrows abruptly, while in the female the tegmen is more broadly narrowed. In both male and female the cauda is sharply constricted at tip of clavus and from there narrows to a point. The venation of tegmen is as follows: Sc_1 follows costal margin and joins Sc_2 near apex; R rather weak, apparently two branched; M rather weak, apparently two branched; Cu_1 follows claval suture, then extends to form the reticulation of the lanceolate cauda; anal veins, 1st A and 2nd A, converge near posterior tip of claval suture.

Male Genitalia. The aedeagal structure is asymmetrical. The aedeagus proper is entirely hidden by the sleevelike theca, which in this species extends beyond the posterior end of the aedeagus. On the left side the theca bears a thickened sclerotized hook which at the base is twice as wide as in the middle and extends two-thirds of the thecal length. On the right side a shorter sclerotized hook is present which is thicker, arcuate and extends about half the thecal length. Each harpago as viewed from a flattened lateral view is a convex, semi-rectangular plate which is about twice longer than wide, and bears an apical, dorsal process or hook which is about two-thirds the length of the harpago. This hook is longer than in other species.

Comparative Notes. This species closely resembles **M. sonorana,** but both male and female are a little smaller than **sonorana.** The cauda is drawn more to a point and posterior portion of tegmen of male is more abruptly narrowed. The vertex in M. **sonorana** is three times as broad as long; in this species it is twice as broad as long. The apical margin of the frons from above and below is rounded while in **sonorana** it is truncate. The harpago has a longer hook, the sclerotized hook of the theca is more equal in size and both are thickened and the hooks are on different respective sides than in **M. sonorana.** This species resembles **sima** n. sp. From this species it is separated by the longer cauda, more flattened disk of frons and the extremely dark tegmina of females with the characteristic islands of light spots. It also resembles **M. angusta** by having a lengthened frons but the vertex is proportionally shorter in **angusta.** From all of the above species it is separated by the more pointed head.

Notes on Distribution and Location of Types. This species was described from numerous specimens taken from the following places: holotype male and allotype female, Elmendorf, Texas, July 3, 1936, M. B. Jackson. Paratypes: three males, and one female, same time and place, M. B. Jackson. Additional paratypes: twenty-six males and nineteen females, Silver City, New Mexico, July 22, 1936; seven females and three males, Elmendorf, New Mexico, July 21, 1936; four males and two females, White Sands, New Mexico, June 30. 1932; four males, Chaves Co., New Mexico, July 8, 1927; one female, Faluria, Texas, January 1, 1946; two females and three males, Las Cruces, New Mexico, August 8, 1936; two males, St. George, Utah, August 18, 1936; two males and one female, Catarina, Texas, July 6, 1938; one male, Belen, New Mexico, July 20, 1936; all collected by R. H. Beamer. In addition one male paratype, Kendell, New Mexico, July 27, 1928, L. D. Beamer, and one male paratype, Alamagordo, New Mexico, June 30, 1932, J. D. Beamer. All above types in the Snow Entomological Collections. Paratypes in the United States National Museum as follows: Eight males, Dixie, Utah, September 10, 1915, E. D. Ball; four males, Dixie, Utah, August 29, 1930, E. D. Ball; two females and one male, Tia Juana, Mexico, August 3, 1912, E. D. Ball; one male, Buckhorn, New Mexico, August 3, 1929 (no collector); three males, St. George, Utah, July 24, 1908 (no collector); one male and one female, Utah-Nevada, August 30, 1930 (no collector); one male, North Lordsburg, New Mexico, August 10, 1929 (no collector). Finally, two males and one female paratypes, Steins, New Mexico, August 8, 1932, R. H. Painter, and one female, White Sands, New Mexico, August 8, 1936, R. H. Painter, in the collection of the Kansas State College, Manhattan, Kansas.

Mistharnophantia ajoensia n. sp.

(Plates I, II, III)

Size. Length from apex of head to tip of posterior claval suture 3.25 mm.; from tip of claval suture to tip of tegmen 1 mm.; width of tegmen 2.25 mm.

Color. General color of body and tegmina, yellowish brown with scattered fuscous markings. An irregular reddish brown stripe extends from tip of head to apex of mesonotum. The lateral carinae are bordered with a brown fuscous stripe. The sides of the frons and anterior portion are greenish color, the rest mottled tan. The clypeus is a reddish color. On the gena in front of the eye are three small brown dots. Tegmen tan, cauda and longitudinal veins brown, boundary of the saddle-like depression in mid clavus outlined with dark brown. The female is a little darker with an island of fuscous coloring on the tegmen and heavy marking along longitudinal veins, cells of costal border brown.

Structural Characteristics. Vertex at its greatest length is equal to median length of the dorsal part of frons and is three times as wide as its median length. Frons as viewed from below, width greater than length with its apex circularly rounded and anterior margin emarginate; viewed from above with two little depressed areas anterior to the vertex and a median

carina extending from tip of head to posterior part of vertex. Pronotum with anterior margin broadly, roundly produced and its posterior margin shallowly concave; its length through the middle approximately one-half of the length of mesonotum. Mesonotum with two slightly elevated outwardly curved carinae, the disk between them depressed slightly, also a light elevated carina anteriorly. Tegmen, as in **curta**, abbreviated, clavus not quite three times longer than cauda, cauda roundingly pointed. The venation of the tegmen is as follows: Sc_1 following expanded costal margin for about one half of tegmen; Sc_2 runs across the elevation then branches to meet Sc_1 in costal margin; R runs to middle of tegmen then joins the posterior reticulated area; M runs for a short distance, then branches and along with Cu_1 and its branches makes up the venation of the thickened cauda; Cu_2 forms claval suture; 1st A follows claval suture for one-third the distance of clavus then joins 2nd A and the two extend to claval tip; 2nd A is elevated to form the hump near the commissural margin.

Comparative Notes. This species resembles **curta**, both being small species with abbreviated caudae. The cauda of corium in this species is longer than in **curta** but is shorter than in **sonorana** and other species of the genus. For further comparison see notes under the description of **curta**. The male and the female are nearly the same color and the tegmen is nearer the same shape in the two sexes than we find in other species of the genus.

Notes on Distribution and Location of the Types. The species was described from five specimens taken in the Ajo Mountains of Arizona by E. D. Ball on July 23, 1937. Holotype male, allotype female, and one paratype in the United States National Museum. One male and one female paratype retained in the Snow Entomological Collections.

Mistharnophantia angusta n. sp.

(Plates I, II, III)

Size. Length of male from apex of head to tip of posterior claval suture 4 mm.; from tip of claval suture to tip of tegmen 1.2 mm.; width of tegmen 2.2 mm. Female from apex of head to tip of posterior claval suture 5 mm.; from tip of claval suture to tip of tegmen 1.3 mm.; width of tegmen 2.4 mm.

Color. General body color rusty brown with dark fuscous markings along longitudinal veins and other areas as follows: a broad fuscous stripe that runs from tip of head to tip of mesonotum, this stripe broader on mesonotum; three blackish fuscous dots on the gena in front of the eye and larger dark fuscous mark behind the eye: 2nd anal vein conspicuously dark; the posterior half of cell 1st A and all of cell 2nd A blackish brown thus making a broad dark stripe along commissural margin; cauda dark brown. Anterior part of frons is blackish, clypeus is reddish, legs are yellowish with dark markings on the tibia, and antennae are dark with tip of pedicel yellow.

Structural Characteristics. Vertex three times as wide as median length, anterior margin in line or slightly anterior to front line of eye, conspicuously depressed on disk. Dorsal part of frons with sharply depressed circu-

lar central depression; median length almost twice median length of vertex; from below frons slightly wider than long, bluntly rounded anteriorly, lateral margins forming an obtuse angle near lower part of eye, sides rolled slightly forward. Viewed from the side the dorsal margin of frons slopes ventrad at the tip which makes the tip of head angulately rounded. Pronotum two and one-half times as wide as vertex and about one-half as long as mesonotum, its anterior margins extending to middle of eye. Mesonotum with two elevated outwardly curved carinae, the disk between them flattened, lateral sides depressed, apex pointed. Tegmen rugged due to greatly elevated veins and granulose areas, a large granulose area at base of clavus and smaller area on central part of corium. The costal veins conspicuous, being heavily marked with fuscous. The costal area of the tegmina overlaps the segments of abdomen. Cauda more spatulate than in **sonorana**, less pointed apically, not suddenly constricted at tip of clavus but with posterior margin of tegmen straight, but cauda itself elevated. The venation of tegmen is as follows: Sc_1 following expanded costal margin to about half the length of tegmen; Sc_2 runs across the elevation then branches to meet Sc_1 in costal margin; R runs for short distance with Sc_2 then branches in front of elevation into two main branches; M two-branched; Cu_1 runs along claval suture, then swings down a little in the middle; Cu_2 forms the claval suture; 1st A runs for a short distance in middle of clavus, then joins 2nd A, the latter elevated, forming the hump on the clavus after which the combined veins extend to the posterior tip of claval suture; veins in cauda and along posterior margins breaking up into indistinguishable reticulation.

Male Genitalia. The aedeagal structure is asymmetrical. The aedeagus proper is entirely hidden by the sleeve-like theca which in this species is extended beyond the posterior end of the aedeagus. On the left side the theca bears a slender sclerotized hook which at base is twice wider than in middle and which extends eight-ninths of the thecal length. On right side is found another sclerotzied hook which at base is three times wider than in middle and extends one-fifth of the thecal length, both hooks having sharp apices.

Comparative Notes

This species closely resembles **Mistharnophantia sonorana** Kirk. but it is much darker and slightly darker than **Mistharnophantia sima.** The frons from dorsal view is twice as wide as vertex while in **M. sonorana** the dorsal median length of frons is less or subequal to that of **angusta.** The cauda is more spatulate and not so abruptly narrowed as in **sonorana.**

Location of Types and Geographical Notes

Holotype male, and two male paratypes, Marathon, Texas, July 10, 1938, R. H. Beamer. Alloytpe female and five male paratypes, Ft. Stockton, Texas, July 11, 1936, R. H. Beamer. Other paratypes: one male, Marathon, Texas, July 9, 1938, R. H. Beamer; one male, same place, July 10, 1938, D. W. Craik; two males, Ft. Stockton, Texas, July 11, 1936, J. D. Beamer; four males, same place and date, D. H. Lindsay. All above types in Snow Entomological

Collections. Additional paratypes in the United States National Museum; four females and one male, Carlsbad, New Mexico, August 6, 1936, E. D. Ball.

Mistharnophantia curta n. sp.

(Plates I, II, III)

Size. Length from apex of head to posterior tip of claval suture on commissural margin 3.5 mm. From tip of claval suture to tip of tegmen .62 mm. Length of tegmen 3.25 mm.; width of tegmen 2.25 mm.

Color. General body color dirty yellowish with a greenish cast and dark brownish markings. Males darkened as follows: a broad dark brownish stripe that runs from tip of head to tip of mesonotum; brownish areas along longitudinal veins; depressed oval area in center of clavus; three black spots on gena in front of eye; frons is olive green to light brownish with the sides streaked with brownish markings. Female with above dark markings more pronounced in addition to a brown arc followed by a lighter one in center of posterior half of tegmen.

Structural Characteristics. Vertex three and a half to four times wider than median length, somewhat rectangular, its lateral margins diverging anteriorly, its median length longer than median length of frons exposed from above, slightly carinate in middle. Frons from above has a curved carina near anterior margin of head, a slight depressed area anterior to the vertex. Frons viewed from below shows its greatest length and its greatest width equal; basal margin, bluntly rounded, disk concave; from side view it extends forward not more than one and one-half times the length of the gena, therefore indicating a shorter head than in other species. Pronotum with anterior margin roundingly produced and its posterior margin shallowly concave, its median length is equal to the combined length of vertex and dorsal part of frons. Mesonotum slightly more than twice as long as the pronotum with two slightly elevated outwardly curved carinae, the disk between them slightly depressed. Tegmina about one-fourth longer than head; cauda bluntly shortened, its length less than one-third of the clavus, only slightly elevated. The venation of tegmen is as follows: Sc_1 following expanded costal margin for two-thirds the length of wing then converging with Sc_2 just before caudal margin; Sc_2 branched before middle of wing; R and M branches reticulated posterior to middle of wing; Cu_1 follows along claval suture then branches; M forms the venation of the cauda; 1st A runs along the clavus then follows along together to end of claval suture.

Male Genitalia. Each harpago as viewed from a lateral view is a convex rectangular plate which is twice longer than wide at a point just anterior to dorsal hook. The hook is about two-thirds the width and extends dorsad, its apex bent again anteriorly. The aedeagal structure is asymmetrical. The aedeagus proper is entirely hidden by the sleeve-like theca. On the left side which is on the opposite side than in **sonorana** the theca bears a sclerotized hook which at base is twice wider than in the middle and which extends two-thirds the thecal length; on the right side is found another sclerotized curved hook which is about one-half the thecal length. Both have sharp apices.

Comparative Notes

This species closely resembles **M. ajoensia** having the cauda shortened, its length not more than one-sixth total dorsal length of body and only slightly elevated. The two species can be separated as follows: the median length of vertex is greater than the dorsal part of frons in **curta**; in **M. ajoensia** the vertex is less than the median dorsal length of frons; the apex of frons in **curta** is bluntly produced, in **ajoensia** roundingly produced. In **ajoensia** median length of frons is less than in its greatest width, while in **curta** the greatest length and width are equal. The venation of the tegmen is similar with the anterior branches forming reticulation which makes it impossible to trace their branching.

Notes on Distribution and Location of Types. This species was described from six specimens collected at Kino Bay, Mexico by E. D. Ball, Dec. 9 (year not recorded). Holotype male, allotype female, one paratype male and one paratype female in the United States National Museum. One paratype male and one paratype female retained in the Snow Entomological Collections.

Mistharnophantia extensa n. sp.

(Plates I, II, III)

Size. Length from apex of head to posterior tip of claval suture 4.25 mm.; from tip of claval suture to tip of tegmen 1.25 mm.; length of tegmen 3.5 mm.; width of tegmen 2.75 mm.

Color. General color of body and tegmen of male uniformly testaceous, only the cauda dark brown. Female darker, clouded with fuscous as follows: a broad brown stripe on mesonotum faintly indicated, base of frons and the usual depressed oval area in center of clavus reddish brown, a large irregular marking in the form of the letter C with curved side next the claval suture and about eight or nine round light brown spots between the C and costal margin, cauda blackish brown with thick veins reddish brown.

Structural Details. Anterior margin of vertex straight, its median length subequal to median length of frons; its lateral margin is distinctly longer, almost one-third greater than median length of frons so that vertex, on first glancing at head, is a conspicuous rectangle; the anterior margin of vertex is slightly concave, a median carina is distinctly present and the lateral margins diverge anteriorly. From above disk of frons depressed; from below its greatest length is equal to its greatest width, the basal margin sharply rounded and anterior margin concave. Pronotum with median length about twice length of frons, roundly produced anteriorly to the middle of the eye, a slight median carina present. Mesonotum is equal to the combined length of head and pronotum; it has two laterally curved carinae with depressed area between; and the tip is pointed. Tegmina elongate, posterior half of male tegmen abruptly narrowed, but cauda itself spatulate, not constricted abruptly at apex of clavus, elevated about one-fourth of the total dorsal length.

The venation of tegmen is as follows: Sc_1 following expanded costal margin to about half the length of tegmen; Sc_2 runs across the elevation then branches to meet Sc_1 in costal margin; R is apparently two-branched; M two-branched with its outer branches extending to the tip of tegmen; Cu_1 runs close to claval suture then branches in the tip of tegmen; Cu_2 forms claval suture; 1st A runs along middle of clavus and 2nd A near commissural margin, meeting toward the posterior portion of claval suture.

Male Genitalia. Each harpago as viewed from a flattened lateral view is a convex semicircle which is about one-third longer than wide at a point just anterior to dorsal hook. The hook is about one-half the width and bends anteriorly and dorsad. The aedeagal structure is asymmetrical with the thecal hooks in the same respective position as in **sonorana**. The aedeagus proper is entirely hidden by the sleeve-like theca which in this species has a conspicuous overlapping posterior lobe protruding over the base of the thecal hook. On the right side the theca bears a slender sclerotized hook, which extends about two-thirds the thecal length. In other species except **sonorana** this long hook is on the left side. On the left side is found another sclerotized hook which is shorter and heavier at the base where it then forms an acute angle in the middle which is half membranous and half sclerotized, giving it a more slender appearance than in other species, after which it bulges slightly, finally tapering to a sharp apex. This short hook in other species except **sonorana** is on the right side.

Comparative Notes

This is a distinctive species in color and general shape of tegmen. The male specimens are testaceous, thus superficially resembling **sonorana** and **acuta** but are distinguished by the contrasting brown cauda. The female is distinguished by the inverted "C" marking on posterior half of corium. Structurally the species seems closer to **angusta** since both have the straight posterior margin of tegmen with spatulate cauda. The two are separated by the fact that the cauda of **extensa** is more spatulate while in **angusta** it is more lanceolate; the length of head and pronotum is equal to length of mesonotum in **extensa**, while in **angusta** the mesonotum is larger; the dorsal median length of frons in **angusta** is much longer to median length of vertex and the general color of **angusta** is dark fuscous while in **extensa** a general light tone is characteristic except for contrasting brown markings as described above.

Notes on Distribution and Location of Types. This species was described from numerous specimens taken at the following places: holotype male, Arizona, C. F. Baker; allotype female and three female paratypes, Yuma, Arizona, August 25, 1929, E. D. Ball; one male and one paratype female, Kino Bay, Mexico, December 8, E. D. Ball; two females, Comstock, Texas, August 9, 1936, E. D. Ball. All above types are in the United States National Museum.

Other paratypes in the Snow Entomological Collections are: two females and two males, Ugnacio, Texas, August 5, 1938; two females and four males,

Alamo, Arizona, August 14, 1935; one female and two males, Tularosa, New Mexico, July 1, 1940; two females and one male, Malaga, New Mexico, August 11, 1936; one male, Arivaca, Arizona, July 25, 1933; two females, Nogales, Arizona, July 25, 1933; all collected by R. H. Beamer. Other paratypes are: four females, Cochise, Arizona, August 24, 1935, Jean Russell, and one female, Brewster Co., Texas, June 17, 1908, Mitchell Cushman.

Mistharnophantia sima n. sp.

(Plates I, II, III)

Size. Length of female from apex of head to tip of posterior claval suture on commissural margin 4.5 mm.; from the tip of claval suture to tip of tegmen 1.5 mm.; length of tegmen 5 mm.; width of tegmen 2.8 mm. Male from apex of head to tip of posterior claval suture 4 mm.; from the tip of claval suture to tip of tegmen 1.2 mm.; width of tegmen 2.5 mm.

Color. General color of body and tegmina brown with an olive green caste in spots, an irregular reddish brown stripe extends from a point just inside tip of head to apex of mesonotum, rest of head and thorax mottled. Postclypeus reddish brown across basal half becoming greenish across apex, anteclypeus tawny. Genae greenish. Tegmina tannish brown with vein 2nd A and apical branches of other longitudinal veins dark blackish brown, cauda darker brown than rest of tegmen and a conspicuous depressed brown area midway of clavus, this area outlined by a curved black marking starting midway of 2nd A vein. 1st A curving posteriorly to the point of joining of veins 1st A and 2nd A, the lower part of the depression viewed from dorsal side blackish brown, the combined depressed areas of the two wings giving the appearance of having been pinched by the thumb and finger of the hand. Female darker and more heavily marked with fuscous than the male. Legs uniform yellowish tan.

Structural Characteristics. Vertex semi-rectangular, its lateral margins diverging anteriorly, its median length approximately equal to median length of frons exposed from above and its lateral margin subequal to median length of frons, slightly carinate in middle. Frons with anterior portion bulbous, posterior part sharply concave, sides expanded and slightly rolled forward, greatest length and greatest width subequal, as viewed from the side frons extends forward twice the length of gena in front of the eye, the females particularly having a snub-nosed appearance, the gena itself extended in front of eye a distance one-half length of eye. Median length of clypeus equal to median length of frons on ventral side. Eyes snugly adjoining lateral corner of pronotum, their width a little less than half width of vertex. Pronotum with anterior margin somewhat squarely roundingly produced and its posterior margin shallowly concave, its length through middle approximately one-half of the length of mesonotum. Mesonotum with two slightly elevated outwardly curved carinae, the disk between them depressed posteriorly.

The anterior portion of tegmina with 2nd A vein elevated starting in line with apex of mesonotum. Tegmen of female boat-shaped, with the anal area

tip pointed backward and the entire apical margin angulately concave. The male costal margin is more rounded than in the female, and the lanceolate cauda in the male is pointed upward making almost a direct line from tip of tegmen to the broad part of tegmen which gives a characteristic appearance of resembling an English sparrow. Vein Sc_2 elevated into a conspicuous hump at a point in line with apex of mesonotum.

The venation of tegmen is as follows: Sc_1 following expanded costal margin almost entire length of tegmen; Sc_2 runs across the elevation then branches to meet Sc_1 at the broadest portion of wing; R is apparently two-branched; M two-branched; Cu_1 runs adjacent to claval suture; Cu_2 forms the claval suture; 1st A runs along middle of clavus and 2nd A near commissural margin, meeting in the center of the clavus then running together to the end of claval suture. Each tegmen has a pimple-like area under the hump on commissural margin, also three smaller areas, one on side of subcostal elevation, one posterior to the depressed area on commissural margin, and one below R_{2+3}.

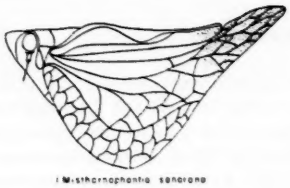
Male Genitalia. Each harpago viewed from flattened lateral view is a convex semicircular plate which is four times longer than wide at a point just anterior to dorsal hook. The hook is about two-thirds the width and bends anteriorly and toward concave side. The aedeagal structure is asymmetrical. The aedeagus proper is entirely hidden by the sleevelike theca which in this species has a conspicuous overlapping posterior lobe protruding over base of the thecal hook. On the left side the theca bears a sclerotized hook which at base is three times wider than in middle and which in length is three-fourths of the thecal length. On the right side is found another sclerotized, posteriorly directed hook which is about one-half the length of the right hook. Both hooks with sharp apices.

Comparative Notes

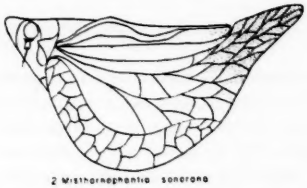
This species closely resembles **M. sonorana**. It is distinguished by its darker coloring, more bulbous, snub-nosed frons and elevated cauda.

Notes on Distribution and Location of Types. This species was described from numerous specimens. Holotype, male, allotype female and five male and six female paratypes, Laredo, Texas, June 3, 1933, P. W. Oman. Other paratypes: four males and three females, Castle Springs, Arizona, August 4, 1941, R. H. Beamer; three females from Mt. Spring, California, July 25, 1938, R. H. Beamer; four females, Catarina, Texas, June 3, 1933, P. W. Oman; two males, Alamo, Arizona, August 14, 1935, Jean Russell; one male, Talfuria, Texas, January 1, 1946, R. H. Beamer; three females, Bradshaw Mts., Arizona, August 27, 1935, E. D. Ball; one male and two females, N. Laredo, Mexico, August 31, 1936, E. D. Ball; one male, Leeds, Utah, August 9, 1936, R. H. Beamer.

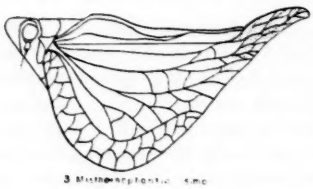
Types and some paratypes in the United States National Museum; other paratypes in the Snow Entomological Collections.



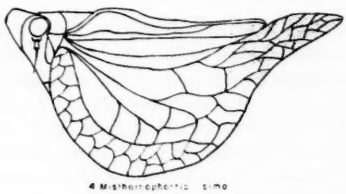
1 Mistharnophantia sonorana



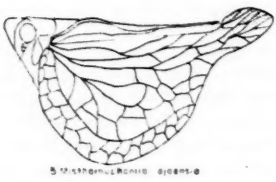
2 Mistharnophantia sonorana



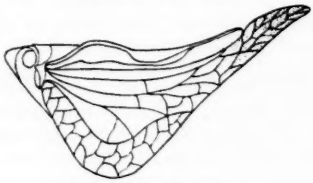
3 Mistharnophantia sima



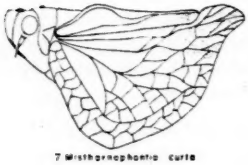
4 Mistharnophantia sima



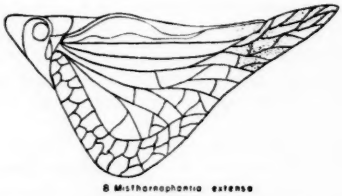
5 Mistharnophantia ajoensis



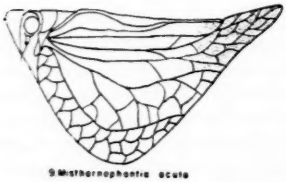
6 Mistharnophantia angusta



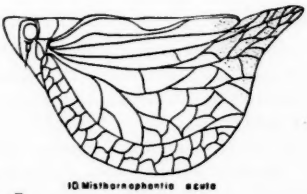
7 Mistharnophantia curta



8 Mistharnophantia extensa



9 Mistharnophantia acuta



10 Mistharnophantia acuta

Plate I

(Plates I, II, III)

1. Lateral view of male of **Mistharnophantia sonorana** Kirk.
2. Lateral view of female of **Mistharnophantia sonorana** Kirk.
3. Lateral view of male of **Mistharnophantia sima** n. sp.
4. Lateral view of female of **Mistharnophantia sima** n. sp.
5. Lateral view of female of **Mistharnophantia ajoensis** n. sp.
6. Lateral view of male of **Mistharnophantia angusta** n. sp.
7. Lateral view of female of **Mistharnophantia curta** n. sp.
8. Lateral view of male of **Mistharnophantia extensa** n. sp.
9. Lateral view of male of **Mistharnophantia acuta** n. sp.
10. Lateral view of female of **Mistharnophantia acuta** n. sp.

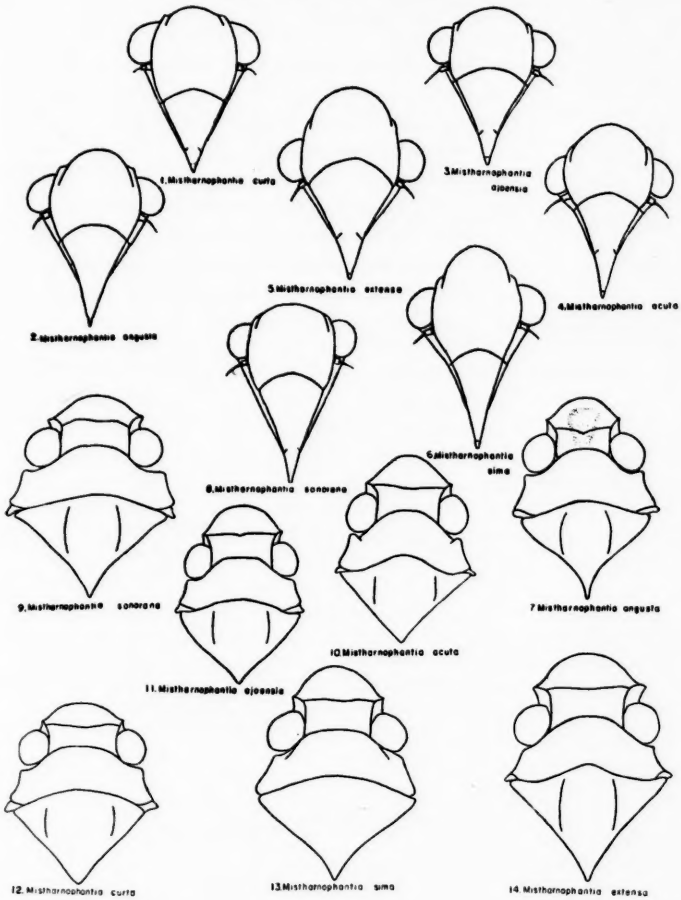


Plate II

1. Cephalo-ventral aspect of head of **Mistharnophantia curta** n. sp.
2. Cephalo-ventral aspect of head of **Mistharnophantia angusta** n. sp.
3. Cephalo-ventral aspect of head of **Mistharnophantia ajoensia** n. sp.
4. Cephalo-ventral aspect of head of **Mistharnophantia acuta** n. sp.
5. Cephalo-ventral aspect of head of **Mistharnophantia extensa** n. sp.
6. Cephalo-ventral aspect of head of **Mistharnophantia** sima n. sp.
7. Dorsal view of head and thorax of **Mistharnophantia angusta** n. sp.
8. Cephalo-ventral aspect of head of **Mistharnophantia sonorana** Kirk.
9. Dorsal view of head and thorax of **Mistharnophantia sonorana** Kirk.
10. Dorsal view of head and thorax of **Mistharnophantia acuta** n. sp.
11. Dorsal view of head of thorax of **Mistharnophantia ajoensia** n. sp.
12. Dorsal view of head and thorax of **Mistharnophantia curta** n. sp.
13. Dorsal view of head and thorax of **Mistharnophantia sima** n. sp.
14. Dorsal view of head and thorax of **Mistharnophantia** n. sp.

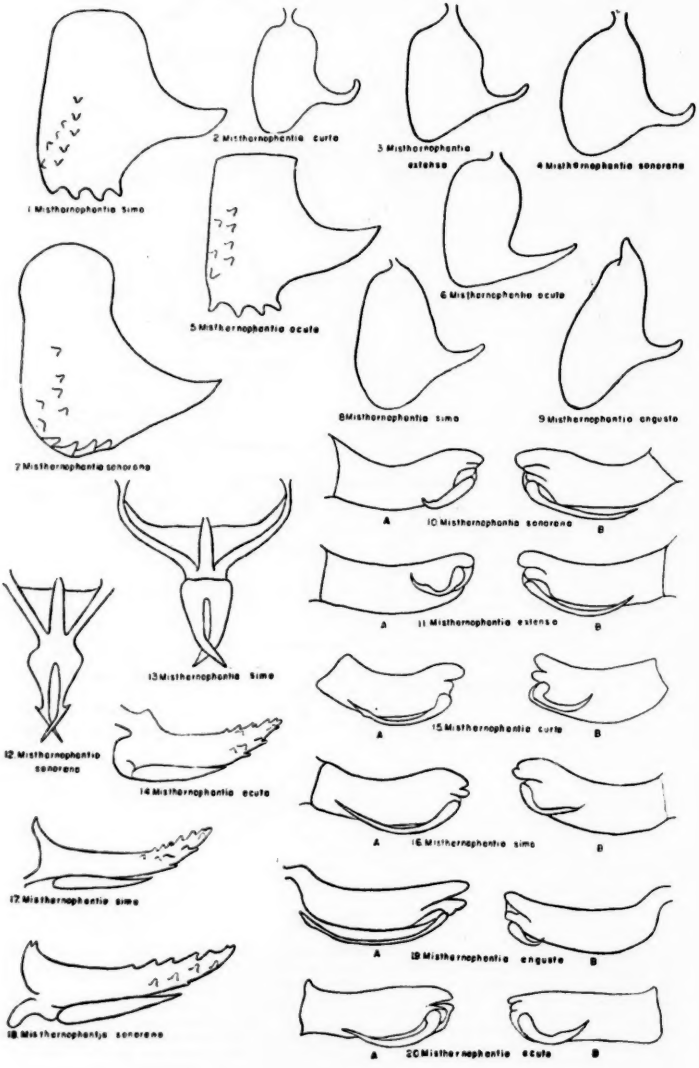

1 Misthornophontia simo
2 Misthornophontia curta
3 Misthornophontia extensa
4 Misthornophontia senorena
5 Misthornophontia acuta
6 Misthornophontia acuta
7 Misthornophontia senorena
8 Misthornophontia simo
9 Misthornophontia angusta
A
10 Misthornophontia senorena
B
A
11 Misthornophontia extensa
B
13 Misthornophontia simo
12 Misthornophontia senorena
A
15 Misthornophontia curta
B
14 Misthornophontia acuta
A
16 Misthornophontia simo
B
17 Misthornophontia simo
A
19 Misthornophontia angusta
B
18 Misthornophontia senorena
A
20 Misthornophontia acuta
B

Plate III

1. Lateral valve of ovipositor of **Mistharnophantia sima n. sp.**
2. Lateral aspect of harpago **Mistharnophantia curta n. sp.**
3. Lateral aspect of harpago **Mistharnophantia extensa n. sp.**
4. Lateral aspect of harpago **Mistharnophantia sonorana** Kirk.
5. Lateral valve of ovipositor of **Mistharnophantia acuta n. sp.**
6. Lateral aspect of harpago of **Mistharnophantia acuta n. sp.**
7. Lateral valve of ovipositor of **Mistharnophantia sonorana** Kirk.
8. Lateral aspect of harpago of **Mistharnophantia sima n. sp.**
9. Lateral aspect of harpago of **Mistharnophantia angusta n. sp.**
10. (A) Lateral left view of aedeagus and theca of **Mistharnophantia sonorana** Kirk.
    (B) Lateral right view of aedeagus and theca of **Mistharnophantia sonorana** Kirk.
11. Lateral left view of aedeagus and theca of **Mistharnophantia extensa n. sp.**
12. Rudimentary anterior valve of **Mistharnophantia sonorana** Kirk.
13. Rudimentary anterior valve of **Mistharnophantia sima n. sp.**
14. Lateral aspect of ovipositor of **Mistharnophantia acuta n. sp.**
15. (A) Lateral left view of aedeagus and theca of **Mistharnophantia curta n. sp.**
    (B) Lateral right view of aedeagus and theca of **Mistharnophantia curta n. sp.**
16. (A) Lateral left view of aedeagus and theca of **Mistharnophantia sima n. sp.**
    (B) Lateral right view of aedeagus and theca of **Mistharnophantia sima n. sp.**
17. Lateral aspect of ovipositor of **Mistharnophantia sima n. sp.**
18. Lateral aspect of ovipositor of **Mistharnophantia sonorana** Kirk.
19. (A) Lateral left view of aedeagus and theca of **Mistharnophantia angusta n. sp.**
    (B) Lateral right view of aedeagus and theca of **Mistharnophantia angusta n. sp.**
20. (A) Lateral left view of aedeagus and theca of **Mistharnophantia acuta n. sp.**
    (B) Lateral right view of aedeagus and theca of **Mistharnophantia acuta n. sp.**

I'LL TELL YOU HOW

LUCY BEAMER
Lawrence, Kansas

I go collecting with my husband. Not that I ever catch anything of importance. I'm sure I don't know why he takes me with him summer after summer but the way he says, "We took a new species," when he's telling about it afterwards makes me ready to go again and again and not ask too many questions. You understand, of course, that the "we" is rhetorical. I have collected with him for fifteen summers—collected beside him, in front of him, behind him, timing the sweep of my net to match his, trying to roll my net just as he does, moving slowly and evenly close to the ground, or swiftly and forcefully as the case may be. I've draped my net over a battered hat and looked for insects on the bolting cloth screen in the top of it,

I've mumbled indistinctly around an aspirator as I sucked in small particles of life, and peered knowingly to right and left to locate insects on the wing. In fact I've done everything, except catch the good ones. So knowing all about it except how to do it, I shall try to answer a question he is sometimes asked flatteringly, "How do you do it?" With this apology for speaking I should like to record a few of the tricks we have learned from friends and from chance circumstances which have added to our pleasure and success in collecting some of the rare insects we have taken in recent months.

On a collecting trip at Piney Point, Md., Dr. R. I. Sailer walked backward in a shallow, sedge-filled pool of brackish water seiving the water as it welled up through and over the trampled vegetation. When we heard him exclaim over a rare Myrid—so rare in fact that it was new to the National Museum Collection, we began imitating his method. We were rewarded not only with more of this Myrid but with Hydrometrids, Hebrids, Delphacids, and Celaphids—twenty Celaphids in one net full. This method has since proven its worth in several other habitats where vegetation is growing in water.

Methods of collecting grow step by step, a suggestion here, a chance bit of luck months later. We had collected **Dorycephalus** with the late Dr. E. D. Ball by lying flat on the ground, parting the stems of the grasses and taking the slender little alligators with our aspirators. Varying the method to suit the occasion we found one summer that we could take Ochterids beside permanent streams of hot water almost whenever we wished to expend the energy to get close enough to the moist hot earth to see the tiny beasts with our bifocals. This summer we found the method sometimes worked with Delphacids and other difficult insects in a great variety of habitats. It is guaranteed to produce the maximum of discomfort to the collector in the shortest length of time. He can become completely covered with chiggers, he can approach a heat stroke, he can make elbows and knees sore for a week, and when the ground is seepy with water his clothes soon lose all resemblance to what the well dressed gentleman should wear. But when all other methods fail, it is worth trying.

It was only a natural step from the afore-described procedures to the knowledge that some insects which live deep in bunches of grass, or actually down in the roots, can be taken by cutting the bunches with a knife and either taking the insects directly from the stubble or shaking them onto a net from the cut portion. In so doing we have often dulled the cook's butcher knife and have worn down whetstones sharpening it afterward.

Finding great rank sedges in a patch in Meade County, Kansas, yielding nothing, we started in desperation to trample them down and then sweep over the trampled patches. Immediately we began getting an occasional specimen of **Dorydiella kansana**, a species of Cicadellid then undescribed and in a few minutes we took one specimen of a tiny new Fulgorid **Bakerella rotundifrons** Beamer. Some time later we returned to this spot to find the farmer had mowed through the edge of this patch of sedges and by sweeping the stubble we were able to take many specimens of this new

species, and also another new species in the same genus, **Bakerella bidens** Beamer. Shortly after this experience we took an occasional long winged specimen of **B. cinerea** in a patch of sedges growing near Lawrence at the rate of only one for a half hour's work. Examining the sedges by hand we found both long and short winged forms of this species living in the four-inch mat of dead stems thru which the green sedges were growing. So quick were these Delphacids when they were exposed that the utmost speed was necessary to get them in an aspirator. This vigorous method even when successful damaged the soft bodies and ruffled the frail wings. We came home and got a small garden sickle with which we mowed a swath about two by eight feet. In this bare stubble we could take as many as a dozen specimens at one sweeping. Later in the summer we chanced upon a wild grass meadow the day the farmer was mowing it. We had been taking a few specimens of some of the well known Delphacids in this meadow but now sweeping over the freshly raked stubble we found hundreds of specimens not only of the common kinds but also of several new species which we had not seen at all before. In the uncut grass nearby we could rarely take one. Returning after a few days of hot sun on the meadow we could get very few specimens on the cut portion. Apparently there was virtue in the grass being freshly cut. This series of experiences led to our taking a scythe on our collecting trips as part of our regular equipment. Sometimes the results are amazing. We can't always predict when cutting will increase the catch. Sometimes it yields nothing but strenuous exercise. But many times when we find too little of interest in a likely spot, mowing a patch eight or ten feet square brings a rich reward.

Arriving one morning at a new patch of sedges we had high hopes for a new Delphacid. The sedges were heavy, thick, as tall as our heads, and growing in shallow water. The most vigorous sweeping brought nothing. Then we placed a sweeping bag just above the water level, tight against a bunch of sedges. Approaching the clump on the side opposite the net we hit it a sharp whack with the side of the hand. On the very first attempt there were a number of specimens of a new **Kelesia**. We had even better results when we changed to a water net. The bag of the water net was much shallower and the one straight edge of the net fitted up against the bunches closer. We also used variations of this method many times to collect numerous interesting specimens while the vegetation was too wet from rain or dew for ordinary methods.

Each student we have taken with us and certainly every specialist we have had the pleasure of meeting in the field has added his bit to the cumulative whole. We like best of all to go collecting with specialists, for each man has his own little tricks and the more ways we learn the better the chase. Now if someone will kindly suggest a way to have hip boots, knee pads, a waterproof shield to sit or lie on, and Father Time's scythe in addition to normal collecting equipment without being encumbered with the paraphernalia, we'll apply for priorities on a human dynamo to keep them all going without getting tired.

A NEW GENUS OF NEARCTIC STAPHYLINIDAE
(Coleoptera)

MILTON W. SANDERSON
Illinois Natural History Survey, Urbana, Illinois

The curious genus to be described was taken in leaf mould and decayed vegetation in deep rock crevices in Devil's Den State Park a few miles west of Winslow, Arkansas. In one area of the park there are many such crevices, some of which are fifty feet in depth.

This genus does not appear to belong to any North American subfamily of **Staphylinidae**, defined at present, but shows some affinities to several groups, notably the **Phloeocharinae**, **Trichophyinae**, **Habrocerinae**, and **Tachyporinae.**

In Blackwelder's (1943) key to the subfamilies occurring in the West Indies, this genus would appear to be associated with the **Oxytelinae** chiefly on the basis of the presence of the second abdominal sternite. However, the second sternite in the **Oxytelinae** is a complete and well defined sclerite, as described by Blackwelder, and not mesally divided and strap-like as in this genus. In the keys to subfamilies by Handlirsch (1924) and Hatch (1927), it would be placed with the **Paederinae.** The intersegmental membrane of the abdomen is without a pattern as described for that subfamily by Blackwelder (1943), and the antennae are situated nearer the eyes in this genus.

Excluding the **Oxytelinae** and **Paederinae** from further consideration, the present genus shows some relationship to the **Tachyporinae, Trichophyinae,** and **Habrocerinae** if one arbitrarily considers the hind coxae as triangular or transverse rather than more nearly conical. The sexual modifications of both sexes of this genus are reminiscent of certain tachyporines, notably **Tachinus.** However, the head in these subfamilies is much more inclined and inserted in the thorax to the eyes. It appears to show even more affinities with **Olisthaerus** Heer in the **Phloeocharinae** since the head in that genus is directed forward and the eyes are not adjacent to the thorax. Although it is not believed that this genus necessarily belongs in the same subfamily with **Olisthaerus,** it is provisionally placed there but as a distinct genus. The following key will distinguish the two genera:

Gular sutures parallel; outer antennal segments transverse; 7th and 8th sternites of male not strongly modified; male genitalia with distinct lateral lobes; front margin of 7th sternite not produced at middle under posterior margin of 6th sternite.....**Olisthaerus** Heer

Gular sutures strongly divergent behind middle; all antennal segments longer than wide; 7th and 8th sternites of male strongly modified; male genitalia without lateral lobes; front margin of 7th sternite produced at middle below posterior margin of 6th sternite .....**Rimulincola** n. gen.

Rimulincola new genus

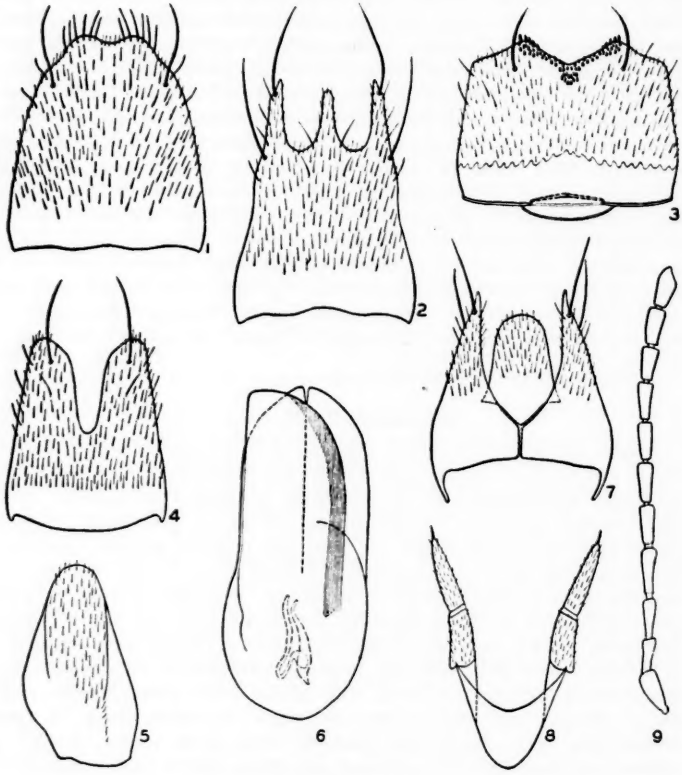
Antennae slender, 11-segmented, uniformly covered with setae, and inserted at the sides of the front very close to the eyes. Ocelli absent. Labrum subtruncate, outer angles distinct. Mandibles without teeth. Maxillary palpus 4-segmented, labial palpus 3-segmented. Gular sutures converging to about the middle then rapidly diverging to base of head. Head horizontal, without distinct neck, and set into prothorax for one-fourth its length. Front coxae prominent, conical and contiguous; prosternum slightly produced between them; coxal cavities open behind. Middle coxae conical, narrowly separated. Posterior coxae conical, contiguous at extreme base and reaching the metasternal episternum and epimeron; inside of coxa convex, the outer side angularly produced near the trochanter. Tarsus 5-segmented. Legs slender; tibia with a fringe of short irregular spinules on the outer side and two larger spines inside; tarsal claws very small. Elytra well developed. Hind wings developed but extending only to apex of fourth abdominal segment; elytral epipleura prominent and nearly vertical. Abdomen with conspicuous paratergites on first four visible segments. Second abdominal sternite present, consisting of a narrow strap-like plate divided on meson and lying in the inter segmental membrane. Intersegmental membrane apparently devoid of pattern. Front margin of 7th sternite produced at middle below posterior margin of 6th sternite. Posterior margins of 7th and 8th sternites of male, and 8th tergite of female with sexual modifications.

Genotype: **Rimulincola divalis** n. sp.

Rimulincola divalis n. sp.

Male.—Length 4.5 mm., width 1.22 mm. Body elongate, nearly uniformly brown and shining, clothed with conspicuous golden hairs, and resembling the genus **Geodromicus** in the **Omaliinae** in general appearance. Head narrower than pronotum, slightly broader behind the eyes where the sides are rounded and sinuate before the base; base of head truncate; upper surface closely, umbilicately punctured and slightly but broadly depressed in the labro-clypeal region and on either side of the middle between the eyes; under surface of head less distinctly punctured. Antenna (fig. 9) lighter than body, filiform, very long, extending nearly to elytral apex; segments 2 to 3 times longer than wide and uniformly widened to their apices; segments nearly uniformly covered with golden hairs which become much shorter beyond basal two or three segments. Pronotum about 1¼ times broader than long, shorter and narrower than elytra, evenly rounded in anterior half then distinctly narrowed and sinuate before base; width before middle about ⅓ greater than at base; pronotum less closely punctured than head, with slight transverse depression at base, a median longitudinal one, and an anterior depression toward the front on each side of middle. Elytra ⅓ longer than pronotum, slightly longer than wide, closely though somewhat irregularly punctured. Abdomen finely though somewhat rugosely punctured above, more coarsely punctured below, the punctures larger toward anterior margins of segments; posterior margin of 7th sternite (fig. 3)

emarginate at middle and with a dense group of short nearly black spines along the emargination and extending a little anteriorly at middle; 8th sternite (fig. 4) deeply and narrowly emarginate; last sternite slightly asymmetrical (fig. 5); penultimate tergite divided on meson (fig. 7). Male genitalia (fig. 6) rather simple with a dorsal asymmetrical piece, lower pieces symmetrical, parallel, narrowly emarginate at the narrowed apex; internal structures on copulatory sac asymmetrical.



Explanation of Plate

Fig. 1. Eighth sternite of female.
Fig. 2. Eighth tergite of female.
Fig. 3. Seventh sternite of male.
Fig. 4. Eighth sternite of male.
Fig. 5. Last sternite of male.
Fig. 6. Male genitalia.
Fig. 7. Last two visible tergites of male.
Fig. 8. Female genitalia.
Fig. 9. Antenna of male.

Female.—Similar to male except for sexual differences. Eighth sternite (fig. 1) narrowed at apex, slightly bilobed, the lobes fringed with a few long setae; 8th tergite produced posteriorly into three long pointed lobes (fig. 2), each slightly more than ⅓ length of segment, the middle one a little shorter than outer ones; apex of each outer lobe with a long black seta; two halves of penultimate tergite completely separated at base by last visible tergite; female genitalia as illustrated in fig. 8, the coxites long, two segmented, clothed with short hairs, and each with a stouter hair at apex.

Holotype, male.—Winslow, Arkansas, Devil's Den State Park, March 30, 1941, M. W. Sanderson. In the collection of the Illinois Natural History Survey.

Allotype, female.—Same data as for holotype.

Paratypes.—Same data as for holotype, 3 ♂, 3 ♀; June 8, 1946, 5 ♂, 3 ♀.

Literature Cited

Blackwelder, R. E. 1943, Bull. 182, U.S.N.M.: 40.
Hatch, M. H. 1927. Tech. Bull. 48, Univ. of Minn. Agr. Exp. Sta.: 9.
Handlirsch, Anton. 1924. In Schroder's Handbuch der Entomologie 3: 567.

A NEW CORIXID FROM GEORGIA (Hemiptera, Corixidae)

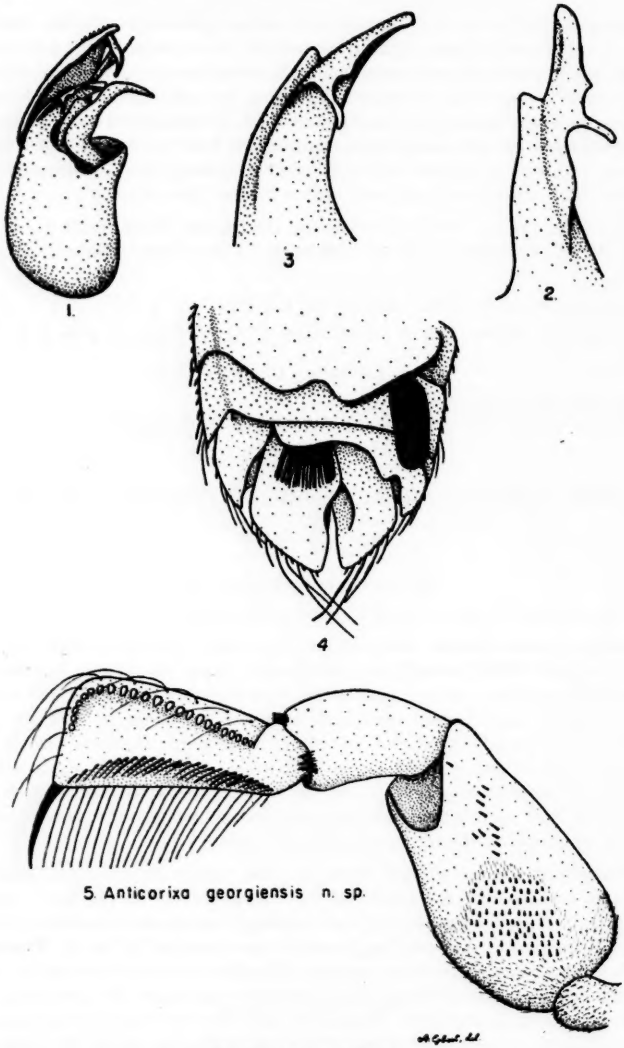
ADDIE M. EGBERT
Lawrence, Kansas

Anticorixa georgiensis n. sp.

Size: Length 8.8 mm. Width of head across eyes 3.2 mm.

Color: General facies rather dark. Pronotum crossed by eight or nine dark, regular bands which are interrupted along the center beyond the pronotal carina by a narrow pale stripe. Pale figures of clavus almost coalescent basally; dark figures tending to merge along margins. Corium with dark figures broad, transverse, irregular; black patch at distal end of embolium and at inner distal angle of corium; outer distal angle with a V-shaped patch of pale yellow. Membrane separated from corium by a pale brownish line; membranal pattern paler, except along outer border which has blackish patch. Head, legs, and venter pale.

Structural Characteristics: Head of male, when viewed from above, a little more than half the length of the pronotal disk; vertex very slightly produced. Facial impression of male shallow, not reaching middle of eyes; facial hairs sparse. Antennal segmental proportions 30: 21: 60: 35. Pronotum with a faint median carina on anterior fifth; disk somewhat pointed at apex. Dorsal aspect of insect shiny, almost without rastration, the pronotum and hemelytra slightly rugulose. Hemelytra with very few hairs. Pruinose area of embolium posterior to nodal suture not quite one-third the length of the embolium. Lateral lobe of the prothorax plainly longer than broad, tip truncate. Mesoepimeron narrow with the scent gland osteole near the tip. Metaxyphus arrow-shaped, longer than broad. Male pala falcate with distal margin almost straight; about 23 teeth in peg row, of which those



Explanation of Plate

Fig. 1. Genital capsule from right side.
Fig. 2. Right view of tip of 9th segment, enlarged.
Fig. 3. Ventral view of 9th segment, enlarged.
Fig. 4. Dorsal view of ♂ abdomen.
Fig. 5. Right foreleg of ♂.

at either end are smaller than those in the middle; basal carina plainly visible. Tibia of foreleg about two-thirds as long as the pala, with dorsal carina bearing a cluster of three or four spines at distal end. Fore femur relatively stout, with about 8 or 9 rows of stridulatory pegs on inner surface near base. Middle and hind legs relatively slender; hind leg with tibia slightly longer than the femur; the proportions of segment to segment as follows:

Middle leg—femur: tibia: tarsus: claw:: 100: 46.4: 37.1: 35.9.

Hind leg—femur: tibia: $tarsus_1$: $tarsus_2$:: 100: 102: 122.4: 32.6.

Male asymmetry dextral; strigil very long, reaching from posterior margin of segment 5 almost to the posterior margin of segment 7, and having 10 rows of regular striae. For details of male structures, see plate.

Comparative Notes: This species is nearest in general appearance to **Anticorixa laevigata** (Uhl.) and to **A. lucida** (Abbt.). It differs from the former in having a non-reticulate hemelytral pattern and a clearly defined membranal suture, and from the latter in being almost without rastration, in having a complete corial pattern, and in having the tibia of the hind leg slightly longer than the femur.

Type Locality: Georgia.

Described from one male taken in Baker Co., Georgia, Oct. 23, 1927, by C. H. Martin. Holotype in the Snow Entomological Collections.

NOMENCLATURE NOTES ON THE FAMILY DORILAIDAE (Pipunculidae-Diptera)

D. ELMO HARDY*
Ames, Iowa

As was pointed out in the writer's Revision of the Neartic Dorilaidae[1] there are genera in this family that were founded upon misidentified genotypes. In dealing with these genera, Opinion 65 of the rules of Zoological Nomenclature has been followed and in accordance with this opinion the named genotype has been accepted regardless of any disparity between it and the original description. A recent paper by Collin[2] states that this opinion has been clarified by an article on this matter by the Secretary to the Zoological Commission[3] and that the type of a genus is a species, not a name. On these premises Collin has accepted as the genotypes the species actually described rather than the species named. The writer has read Hemming's discussion, which Collin used as his authority, but has failed to arrive at the same conclusions as Collin. Hemming's report states "the Committee is of the opinion that as a specimen is the type of a species, so a species is the type of a genus, and hence that when an author names

* Assistant State Entomologist.

a particular species as the type of a new genus it is to be assumed that it has been correctly determined." He further states that the reviser of a genus must start with the preliminary assumption "that, where the original author of a genus himself designated the type of that genus, he knew his species and therefore that he correctly identified the species included by him in the genus. . . . The reviser of a genus should therefore accept as the type of that genus the species to which properly belongs the specific name used by the author of that genus when on its first publication he designated its type. . . . The reviser of a genus will occasionally be confronted with evidence showing (or strongly suggesting) that the author of a genus made a mistake in identification when dealing with the species designated by him as the type of the genus." Hemming concludes his article by advising that where a problem concerning misidentified genotypes occurs the reviser should submit the case, with full details, to the International Commission for an opinion. In view of this discussion by the secretary, it seems clear that until a specific opinion is made by the commission the type of a genus remains the species which is named and not necessarily the one that is described. The omnipresence of human errors makes it impossible to arrive at any point of taxonomic stability when such problems are left up to individual interpretations for their solution. When dealing with original descriptions it is not always possible to decide exactly what the author had before him and individual interpretations will often differ greatly. It is therefore, imperative that such matters be settled by the Committee on Zoological Nomenclature and not by individual taxonomists.

A brief review of the genera and names in the **Dorilaidae** which are affected by Opinion 65 is as follows:

Prothechus Rondani

This genus was evidently based upon a misidentified genotype. **Pipunculus auctus** Fallen was the species which Rondani indicated as his genotype, yet from his description it seems evident that he had a specimen of **Dorilinae** with an appendiculate fourth vein. The species evidently belonged to the group now known as **Cephalosphaera.** There are two species in Europe which belong to this genus and there is no way of knowing which one Rondani actually had before him. If the commission should decide that this genus be defined by the described species rather than the named genotype, the generic name will be changed to **Verrallia** Mik, and the name **Prothechus** will have to replace **Cephalosphaera** in a different genus.

Cephalosphaera Enderlein

This is apparently the genus which Rondani described as **Prothechus** but as **Prothechus** is isogenotypic with **Verrallia** Mik, according to designated genotypes, the name is not available for use here under the provisions of Opinion 65. As stated above the name **Prothechus** will have to replace **Cephalosphaera** if the commission decides in favor of the described species.

Tömösváryella Aczel

This name will have to be replaced by **Alloneura Rondani** if Opinion 65 is not followed. Rondani used **Pipunculus flavipes** Mg. as his genotype but his description indicates that his specimen belonged to quite a different species in the group of Dorilaidae having no stigma in the wing. This group has since been divided into four genera but Collin has indicated that Rondani's species was congeneric with **Tömösváryella** Aczel.

The full particulars of these cases have been submitted to the Secretary of the International Commission on Zoological Nomenclature and a request has been made for an official decision to be made on these matters. Until this opinion is published it will be best that we follow Opinion 65 and not cause more confusion by following the decisions of individual taxonomists in cases involving misidentified genotypes.

Literature Cited

1. 1943, Univ. of Kans. Sci. Bull., 29, 1-231.
2. 1945, Ento. Month. Mag., 81, 1-6.
3. 1943, The Generic Names of British Insects, Part 8, 326-342.

A NEW SPECIES OF STENOCRANUS AND NOTES ON A BAKERELLA (Homoptera-Fulgoridae-Delphacinae)

R. H. BEAMER
Lawrence, Kansas

Stenocranus sandersoni n. sp.

This species comes out in Beamer's key to **Stenocranus** of North America (Jour. Kans. Ent. Soc., Vol. 19, No. 1, Jan. 1946, p. 2) in couplet 3 with **S. felti** V.D. and **S. arundineus** Metcalf. It may be separated from the latter by its much smaller size and by having but one pair of very short anal hooks, and from the former by its almost total lack of dark color on elytra, anal hooks not bifid and aedeagal process more or less sword-shaped. Length ♂ 4.75, ♀ 5.2 mm.

Front not quite three times as long as greatest width, sides almost parallel on apical two thirds, slightly narrowed on basal third, moderately tricarinate, about uniformly buff-colored throughout; vertex slightly longer than basal width, with lateral fovea concolorous with vertex; elytra of medium length, sides almost parallel, apices rounded; M_1 and M_2 not stemming from R, not or very slightly curved to costa.

General color buff with a rather narrow median white line; elytra semihyaline with veins very slightly darker, occasionally a specimen with a distinctly darker wedge from cross veins to tip on mesal margin; legs buff to slightly lineate.

Genitalia: In lateral view anal segment large with pair of short, sharp, ventrally-projecting processes of about equal length; aedeagus long and

slender, widest at base, gently narrowed to curved apex; aedeagal process slightly more than two-thirds as long as aedeagus, more than twice as wide at base as shaft of aedeagus at same place, gently narrowed on outer two-thirds to sharp point; styles widest at base, sinuate and narrowed to sharp apices; in ventral view broadest at base, sharply narrowed near middle to avicephaliform apex.

Holotype ♂, allotype ♀, 87♀ and 84 ♂ paratypes, Orland Park, Ill., July 13, 1946, R. H. Beamer. Types in the Snow Entomological Collections. Paratypes in Illinois Natural History Survey, Urbana, Ill.

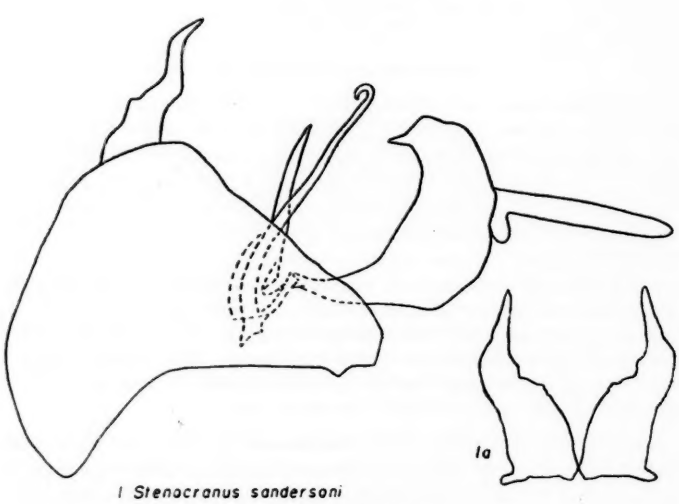
Doctor Milton W. Sanderson of the Illinois Natural History Survey took me to this locality and I take pleasure in dedicating this species to him.

Bakerella muscotana Bmr.

Bakerella muscotana Beamer, R. H. Jour. Kans. Ent. Soc., Vol. 19, No. 3, p. 82, July, 1946.

Additional specimens of this species were taken at Orland Park, Illinois, July 13, 1946, including many macropterous specimens of both sexes. The males are like the females except slightly smaller.

The allomorphotype ♂ and 16 parallomorphotypes are here designated.



1 Stenocranus sandersoni

Explanation of Plate

1. Lateral view of ♂ genital segment of **Stenocranus sandersoni.**
1a. Ventral view of ♂ styles of **Stenocranus sandersoni.**

SOME INSECT FOOD OF THE SAGE SPARROW

G. F. KNOWLTON and WM. P. NYE
Utah State Agricultural College, Logan, Utah

Forty-five specimens of the sage sparrow, **Amphispiza nevadensis,** were collected in sage, rabbitbrush and greasewood areas of Utah from 1934 through 1942. Examination of the preserved stomachs reveal the following insect material, still in recognizable condition:

Six Thysanura; 4 Collembola; 20 Orthoptera, 19 being adult and 2 nymphal shorthorned grasshoppers and 1 meadow grasshopper; 2 Thysanoptera.

The 231 Hemiptera present included 4 Scutelleridae, 1 Cydnidae, 6 Pentatomidae of which 2 were **Carpocoris remotus** Horv., 1 Corizidae, a **Corizus hyalinus** (Fabr.), 1 Coreidae, 154 Lygaeidae included 125 adult and 17 nymphal **Nysius ericae** (Sch.), 3 **N. californicus** Stal, 2 **Geocoris pallens** var. **decoratus** Uhler, 1 Nabidae **Nabis alternatus** Parsh., 8 Miridae, 4 being **Lygus,** 1 a **L. elisus** Van D.; 212 Homoptera included 34 adult and 72 nymphal **Eutettix tenellus** (Baker) beside 7 other adult and 3 nymphal leafhoppers, 8 Membracidae, among them 3 **Pubila modesta** Uhler and 1 **Leioscyta ferruginipennis** (Godg.), 3 Fulgoridae, 39 Aphididae, among them 1 **Cinara** sp., 5 **Macrosiphum pisi** (Kalt.), 5 **M. coweni** Hunter and 1 **Aphis bonnevillensis** Knlt., and 39 Coccidae, largely scale insects.

The 37 Coleoptera contained in recognizable form included 2 Dermestidae larvae, 1 Buprestidae, 1 Elateridae, 1 Cerambycidae, 2 Chrysomelidae, one being a fleabeetle, and 2 weevils; 8 larval Lepidoptera and 3 eggs. Nineteen Diptera were recognized all but one being adult, including 2 female mosquitoes and 2 Tipulidae; 116 Hymenoptera were present of which 90 were ants and 1 chalcid.

In addition to the insects listed above, recognized at least to order there were numerous grasshopper and some coleopterous mandibles present as well as a large number of other insect fragments. In addition, 6 spiders and 852 seeds, mostly weed seeds, were found. Large numbers of seed and plant fragments were present in a number of the stomachs.

SOME NEW SPECIES OF DELPHACODES
(Homoptera, Fulgoridae, Delphacinae)

R. H. BEAMER
Lawrence, Kansas

Delphacodes nigripennata n. sp.

Brachypterous form:

Resembles **D. alexanderi** (Metcalf) but front without black longitudinal stripes, anal segment with two pairs of processes and aedeagus bent dorsally almost at right angles near base. Length ♂ 2.0 mm.

Structure: Front about three times as long as wide, widest slightly below middle, slightly narrowed on apical third to apex, narrowed about one-fourth on basal third, definitely tricarinate; crown longer than width be-

tween eyes, carinae barely visible; elytra widest near middle, reaching to genital capsule, apices broadly rounded.

Color: Head, pronotum and most of body except abdomen tawny, abdomen mostly dark brown to black, with two dorsal light crossbands, some light spots on lateral margins of dorsum and narrow light hind margins of ventral segments; large dark spot above hind coxae; elytra black or very dark brown, shining, veins raised.

Genitalia: In lateral view anal segment with two pairs of processes; aedeagus bent dorsally near base with dorsal margin bulged near middle, some small teeth in region of this bulge; styles avicephaliform, beak sharp, head high and fairly sharp.

Holotype ♂ and 1 ♂ paratype, Hutchinson, Kans., Aug. 5, 1945, R. H. Beamer; other paratypes: 3 ♂♂, Medora, Kans., same day and collector; 1 ♂, Clark Co., Kans., Sept. 14, 1944, R. H. Beamer; 1 ♂, Meade Co., Kans., Sept. 13, 1944, R. H. Beamer; 1 ♂, Medora, Kans., July 6, 1945, R. H. Beamer.

Macropterous form:

Like the short-winged form except wings about one-third longer than abdomen, semihyaline with veins darker, widest in region of crossveins. Color dark brown, with legs somewhat lighter.

Holomorphotype ♂, Old Town, Fla., July 11, 1939, R. H. Beamer.

Types in Snow Entomological Collections.

Delphacodes silvae, n. sp.

Brachypterous form:

Resembling **D. nigripennata** but anal segment of male with but one pair of processes, sides of aedeagus nearly parallel with spines throughout and styles avicephaliform in ventral view. Length ♂ 2.2 mm.; ♀ 2.6 mm.

Structure: Front with sides almost parallel on basal two thirds, slightly converging at apex and more so on basal third, definitely tricarinate; crown barely longer than width between eyes, indefinitely carinate; elytra widest near middle, apices broadly rounded, ending slightly beyond middle of abdomen, veins raised.

Color: General color stramineous; in female, ovipositor and sheath brown; in male, elytra shining black, also abdomen except dorsum of last two segments including part of genital capsule; also a dark spot above hind coxae.

Genitalia: In lateral view anal segment with a pair of short, heavy processes; aedeagus about four times as long as wide, almost parallel-sided to rounded apex, gently curved ventrally and covered throughout with numerous sharp spines; aedeagal brace evident, narrow at apex; styles more or less pediform, in ventral view avicephaliform with sharp beak and long narrow head.

Holotype ♂, allotype ♀ and 2 ♂ paratypes, Brownsville, Texas, Dec. 29, 1945, R. H. Beamer, taken in the Palm Forest.

Types in Snow Entomological Collections.

Delphacodes sagae n. sp.

Brachypterous form:

Resembles **D. silvae** but smaller, more nearly black all over and aedeagus bent in half circle in lateral view. Length ♂ 1.8 mm.

Structure: Front slightly more than twice as long as wide, sides almost parallel, slightly converging at either end, plainly tricarinate, crown almost square, carinae visible but blunt; elytra almost rectangular, reaching to genital capsule, apices broadly rounded.

Color: General color almost black; head, pronotum, legs and dorsal spot at base of abdomen somewhat lighter.

Genitalia: In lateral view anal segment with two, long sharp processes; aedeagus about four times as long as broad, curved ventrally in almost half circle, sides nearly parallel, band of teeth on outer third; aedeagal brace long and strongly bifid; styles widest at base, bent dorsally on outer half with two short projections on ventral margin.

Holotype ♂ and 12 ♂ paratypes, Fredonia, N.Y., July 21, 1946, R. H. Beamer.

Types in Snow Entomological Collections.

Delphacodes hyalina n. sp.

Brachypterous form:

Resembles **D. foveata** (V.D.) but smaller, vertex definitely longer than wide and genital segment of male definitely infuscated. Length ♂ 2.2 mm.; ♀ 2.5 mm.

Structure: Front almost parallel-margined, slightly narrowed at base, moderately tricarinate; crown slightly more than one-third longer than width between eyes; elytra widest near middle, extending barely beyond abdomen, apices rounded, veins raised, sparsely set with fairly large dark setae; hind wings reduced to mere pads, about half size of an eye.

Color: General color stramineous with carinae of front bordered with black, a large black spot above posterior coxae, the anterior fovea of crown black, legs more or less lineate with fuscous and genital capsule infuscated.

Genitalia: In lateral view anal segment with a pair of rather closely appressed, sharp processes; aedeagus about three times as wide at base as near middle; sharply bent dorsad near base, gradually tapered to apex with about four teeth bordering opening on right side; aedeagal brace very long, extending out even with styles; styles pediform, toe long and slender, heel small.

Holotype ♂, allotype ♀, 63 ♂ and 75 ♀ paratypes, Douglas Co., Kans., Aug. 23, 1945, R. H. Beamer. Other paratypes: 23 ♂ ♂ and 25 ♀ ♀, same place and collector, Aug. 27, 1945.

Types in Snow Entomological Collections.

Delphacodes lutea n. sp.

Brachypterous form:

Resembling **D. hyalina** but without dark color except in styles, aedeagal brace and aedeagus. Length ♂ 2.1 mm.; ♀ 2.8 mm.

Structure: Front widest near middle, very slightly narrowed toward apex, constricted about one-fourth on basal third, distinctly tricarinate; crown almost rectangular, plainly but feebly carinate; elytra with sides almost parallel, apices broadly rounded, veins raised with scattered, long light setae.

Color: Golden yellow with tips of tarsi, styles, aedeagus and aedeagal brace darker.

Genitalia: In lateral view anal segment without processes; aedeagus broad and with sides almost parallel on basal two-thirds, sharply constricted on ventral margin on outer third with apex directed ventrally; aedeagal brace long and narrow, extending back between the styles; apices of styles pediform with blunt toe and heel.

Holotype ♂, allotype ♀, 41 ♂ and 40 ♀ paratypes, Douglas Co., Kans., Aug. 22, 1945, R. H. Beamer; other paratypes 20 ♂ ♂ and 17 ♀ ♀, same place and collector, Aug. 27, 1945.

Macropterous form:

Like the short wing form but elytra hyaline, widest in region of crossveins, extending about one-third their length past abdomen.

Holomorphotype ♀ and 8 ♀ paramorphotypes, Douglas Co., Kans., Aug. 22, 1946, R. H. Beamer; 9 paramorphotypes, same place and collector, Aug. 27, 1945.

Types in Snow Entomological Collections.

Delphacodes lappae n. sp.

Brachypterous form:

Resembling **D. hyalina** Beamer but dark color on abdomen more or less in a broad lateral band reaching across ventral part of genital capsule, aedeagus enlarged at tip with many teeth and styles in lateral view avicephaliform. Length ♂ 2.3 mm.; ♀ 3.0 mm.

Structure: Front widest near apical third, gently narrowed to apex and base, definitely tricarinate; crown slightly longer than width between eyes, carinae definite; elytra widest near apex of scutellum, tapering to rounded apex, ending slightly before tip of abdomen in female and at tip in male; hind wings absent.

Color: General color stramineous; carinae of front bordered with fuscous; lateral and apical foveola of crown black; abdomen with a more or less definite broad lateral longitudinal stripe which crosses ventral portion of genital capsule; in female ovipositor and sheath brown, venter more or less flecked with brown.

Genitalia: In lateral view anal segment with a pair of heavy blunt processes; aedeagus about half as wide at base as total length, narrowed near middle on ventral margin, slightly enlarged with many teeth on tip; styles avicephaliform, beak sharp and short, head high and rather sharp.

Holotype ♂, allotype ♀, 12 ♂ and 5 ♀ paratypes, Sarita, Texas, Dec. 25, 1945, R. H. Beamer; 1 ♂ paratype, Mission, Texas, Dec. 26, 1945, R. H. Beamer.

Types in Snow Entomological Collections.

Delphacodes bifurca n. sp.

Brachypterous form:

Resembles **D. shermani** but male has a large shining spot on scutellum, another above middle coxae and aedeagus is bifurcate more than one-third its length. Length ♂ 1.8 mm.; ♀ 2.2 mm.

Structure: Front slightly more than twice as long as width, widest near middle, slightly converging toward apex, more so toward base, plainly tricarinate; crown slightly longer than width between eyes, carinae very indefinite; elytra hyaline, widest near tip of scutellum, reaching to genital capsule in male on to fourth abdominal segment in female, apices broadly rounded, veins slightly thickened, sparsely set with setae.

Color: General color stramineous; ovipositor and sheath of female slightly darker; male with large shining black spot on scutellum and above middle coxae, few dark spots on dorsum of abdomen near base, one on each side of genital capsule; styles, aedeagus and hooks of anal segment also darker.

Genitalia: In lateral view anal segment with two large sharp processes; aedeagus bulbous near base, divided from tip to basal fifth, dorsal portion slightly shorter than ventral, sharp pointed, ventral portion with knobbed apex bent ventrally; styles barely visible, parallel with wall of pygofer apex, narrowed and slightly turned out.

Holotype ♂, allotype ♀, 7 ♂ and 4 ♀ paratypes, Douglas Co., Kans., Aug. 23, 1945, R. H. Beamer; other paratypes: same place and collector, 3 ♂♂ and 6 ♀♀, Aug. 27, 1945; 1 pair, Aug. 22, 1945; 7 ♂♂ and 3 ♀♀, July 7, 1945; 14 ♂♂ and 3 ♀♀, July 24, 1945; 8 ♂♂ and 2 ♀♀, July 31, 1945; 24 ♂♂ and 6 ♀♀, July 25, 1945; 2 ♂♂ and 4 ♀♀, July 23, 1945; additional paratypes: 4 ♂♂ and 6 ♀♀, Hutchinson, Kans., Aug. 5, 1946, R. H. Beamer, 14 ♂♂ and 36 ♀♀, Medora, Kans., Aug. 5, 1945, R. H. Beamer.

Types in Snow Entomological Collections.

Delphacodes bocana n. sp.

Brachypterous form:

Resembling **D. floridae** Muir and Giff. but crown about as wide as long, black stripes either side median carina of front and elytra about same color as remainder of body. Length ♂ 1.8 mm; ♀ 2.0 mm.

Structure: Front widest about basal third, slightly narrowing to apex,

more definitely narrowed on basal third, strongly tricarinated; crown almost rectangular, strongly carinated; elytra semihyaline, almost rectangular, reaching to genital segment in male, to middle of abdomen in female, broadly rounded at apices, veins heavier.

Color: General color tawny with following darker areas: genital segment and more or less of sternum of male, ovipositor sheath and area on each side of frontal carina of female.

Genitalia: In lateral view anal segment with a pair of heavy, fairly blunt processes; aedeagus about four times as long as wide, slightly curved dorsally throughout with a number of small teeth near middle on dorsal margin and a few on side near apex; styles rather short, almost parallel-sided.

Holotype ♂, allotype ♀, 1 ♂ and 8 ♀ paratypes, Brownsville, Texas, Dec. 27, 1945, R. H. Beamer.

Macropterous form:

Like short wing form except elytra extending about one-third their length beyond abdomen, widest beyond crossveins, veins raised, darker beyond crossveins.

Holomorphotype ♂, same data as brachypterous form.

Types in Snow Entomological Collections.

INDEX—VOLUME 19

Ball, E. D., Article by 73
Beamer, Lucy, Article by 127
Beamer, R. H., Articles by 1, 15, 82, 139
Butterflies, Notes on Kansas 110

Calkins, LaVere A., Article by 66
Cercopidae or Spittlebugs of Missouri, The 30
Cochliomyia americana in Arizona, Population Studies on 26
Corixid from Georgia (Hemiptera, Corixidae), A New 133

DDT, Effect of Temperature on Knock-Down and Kill of Mosquitoes and Bedbugs Exposed to 13
Dean, George A., Article by 37
Delphacine Fulgorid with Notes on Four Other Species (Homoptera-Fulgoridae-Delphacinae), A New Species of 82
Delphacodes, Some New Species of.... 139
Deonier, Christian C., Article by 26
Doering, Kathleen C., Article by 111
Dorilaidae (Pipunculidae-Diptera), Nomenclature Notes on the Family 135

Egbert, Addie M., Article by 133
Epitedia Jordan (Siphonaptera),) A New Species of 62
Erythroneura of the Vulnerata Group, The 15

Froeschner, Richard C., Article by 30

Grasshoppers Eaten by Utah Birds 71

Hardy, D. Elmo, Article by 135
Harmston, F. C., Article by 23
Hepner, Leon W., Article by 87
Hungerford, H. B., Article by 59

Idiocerus (Homoptera: Cicadellidae), Some New North American 73
I'll Tell You How 127
Insect Food of the Sage Sparrow, Some 139

Jameson, Jr., E. W., Article by 62

Kelly, E. G., Article by 37
Knowlton, G. F., Articles by 23, 71, 139

Lindquist, Arthur W., Article by 13

Madden, A. H., Article by 13
Minthoselia in the United States (Diptera, Tachinidae), The Genus.. 52
Mistharnophantia Kirkaldy (Subfamily Flatinae, Fulgoridae, Homoptera), Some New Species of the Genus 111

Notonectidae, A New Genus and Species of 59
Nye, William P., Article by 139

Paraclius (Diptera: Dolichopodidae), Two New 23
Parker, Frank H., Article by 73
Parker, Ralph L., Article by 11
Phyllophaga from Texas (Coleoptera, Scarabaeidae), A New 69
Pseudococcus juniperi Ehrhorn, Notes on the Juniper Mealy Bug 66

Reinhard, H. F., Articles by 52, 69

Sanderson, Milton W., Article by 130
Scaphytopius (Homoptera-Cicadellidae), A New Subgenus and Several New Species of 87
Schroeder, H. O., Article by 13
Shepherd, Chester J., Article by 111
Smith, Roger C., Article by 37
Stallings, Don B., Article by 110
Staphylinidae (Coleoptera), A New Genus of Nearctic 130
Stenocranus in America North of Mexico, The Genus 1
Stenocranus and Notes on a **Bakerella** (Homoptera-Fulgoridae-Delphacinae), A New Species of.... 137
Summary, The Fifteenth or 1945 Annual Insect Population of Kansas 37

Turner, J. R., Article by 110
Typophorus viridicyaneus (Crotch), (Coleoptera, Chrysomelidae), Additional Host and Distribution Records of the Sweetpotato Leaf Beetle 11

PRICE OF BACK VOLUMES

Back Volumes $2.50 per volume

Subscriptions for back volumes or numbers should be sent to Donald A. Wilbur, Department of Entomology, Kansas State College, Manhattan, Kansas.

CONTENTS OF THIS NUMBER

Some New Species of the Genus Mistharnophantla, Kirkaldy (Subfamily, Flatinae, Family Fulgoridae, Homoptera).
KATHLEEN C. DOERING and CHESTER J. SHEPHERD 111

I'll Tell You How.
LUCY BEAMER 127

A New Genus of Nearctic Staphylinidae (Coleoptera).
MILTON W. SANDERSON 130

A New Corixid From Georgia (Hemiptera, Corixidae).
ADDIE M. EGBERT 133

Nomenclature Notes on the Family Dorilaidae (Pipunculidae-Diptera).
D. ELMO HARDY 135

A New Species of Stenocranus and Notes on a Bakerella (Homoptera-Fulgoridae-Delphacinae).
R. H. BEAMER 137

Some Insect Food of the Sage Sparrow.
G. F. KNOWLTON and WM. P. NYE 139

Some New Species of Delphacodes (Homoptera, Fulgoridae, Delphacinae).
R. H. BEAMER 139

Index to Volume 19 145